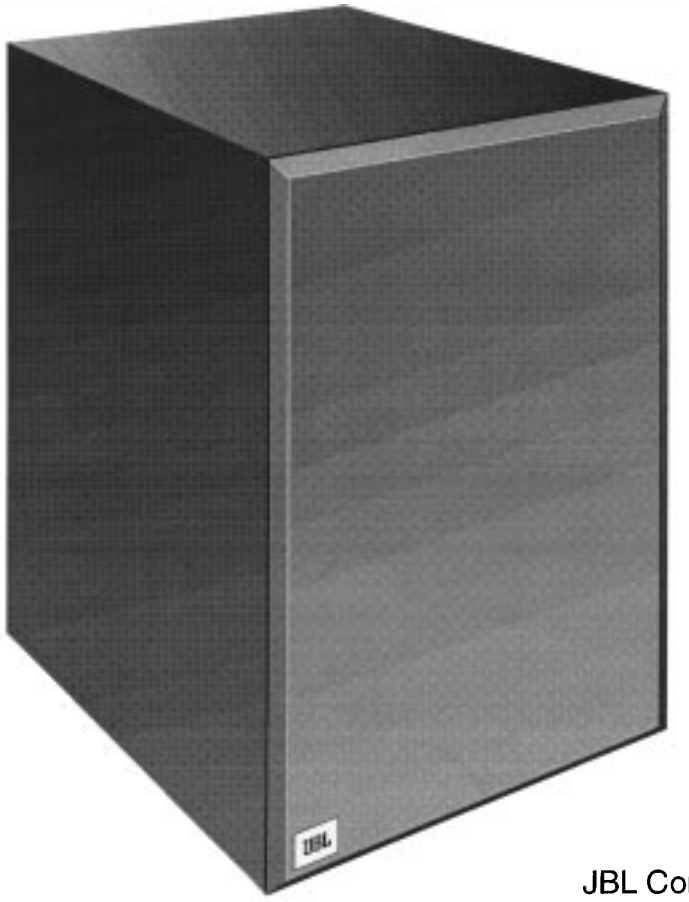
JBL GSUB10

Single 10" Floorstanding Powered
Subwoofer System G Series Loudspeaker

SERVICE MANUAL



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H A Harman International Company

Part No.: 1112-JBLGSUB10
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FEATURES

- ALC circuit to protect driver. Automatic Level Control is incorporated to regulate the maximum voltage to the speaker. This prevents driver from being damaged and ensures years of service.
- Adjustable crossover frequency and subwoofer output levels allow a perfect sound match to your speakers.
- Polarity switch allows normal and reverse polarity for proper acoustic summation of your system regardless of subwoofer placement.
- Line level and speaker level inputs and speaker level outputs allow easy integration into your system.
- User friendly auto off and on. Signal sensing auto shut-off/turn-on automatically puts the amplifier into stand-by mode, effectively turning the subwoofer off and on so you don't have to.
- Multicolor LED indicator
- Red signifies stand-by mode. The subwoofer is not receiving any signal source. NOTE: The amplifier will go into the stand-by mode after a period of 3 to 5 minutes of no signal.
- Green signifies that it is receiving signal and the amplifier is on.

JBL continually strives to improve its products. New materials, production methods and design refinements are introduced into existing models without notice as a routine expression of our design philosophy. For this reason, PS Series loudspeakers may differ in some respect from their published specifications and descriptions, but will always equal or exceed the original specifications unless otherwise stated.

SPECIFICATIONS

Amplifier Power (RMS)*	80 Watts
Low Frequency Woofer	10"
Voice Coil Diameter	2"
Cone Material	Poly-fiber Laminate
Inputs	Line Level & Speaker Level
Outputs	Full Range Speaker
Crossover Frequency	50-200 Hz (Continuously Variable)
Frequency Response (-6dB)	30 Hz to (62-250 Hz)**
External Dimensions (Inches)	
Height	17-1/4"
Width	13-1/4"
Depth	14-1/4"
External Dimensions (mms)	
Height	438 mm
Width	337 mm
Depth	362 mm
Weight (each)	35 lbs (15.9kg)
Shipping Weight	40 lbs (18.1kg)

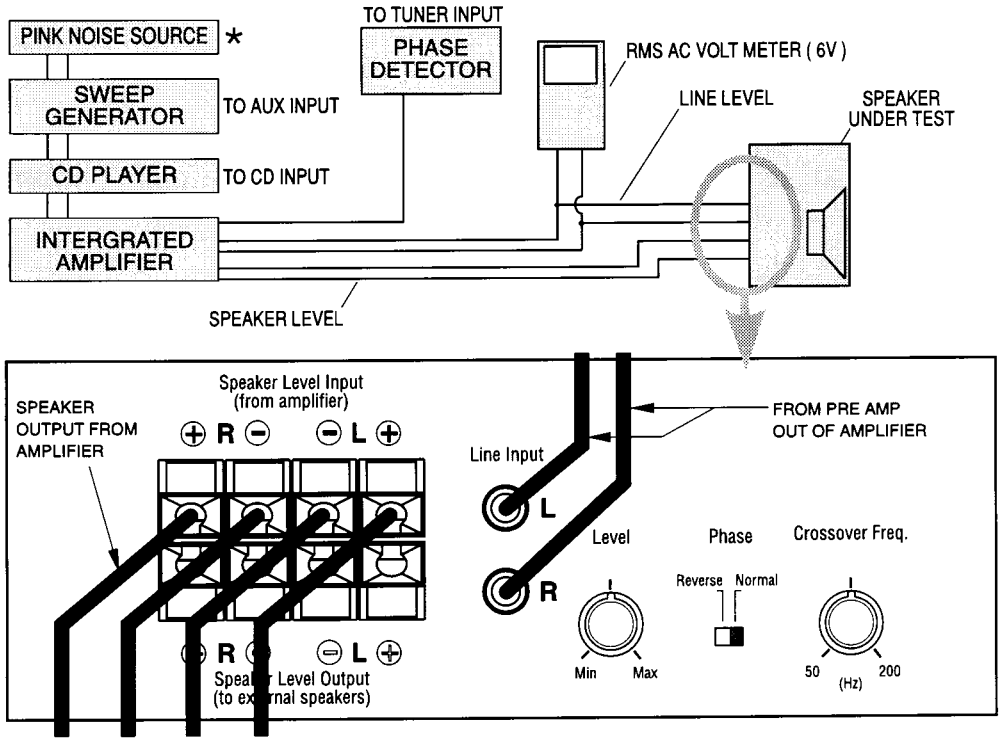
*ALC circuit defeated.

**Determined by crossover setting.

POWERED SUB WOOFER TEST SETUP

EQUIPMENT	Qty
Integrated Amp	1
Sweep Generator	1
RMS DMM	1
Phase Detector	1
* Pink Noise Source (CD or RTA)	1

* i.e. Track 7 IASCA disc, RTA or any other test disc



TEST PROCEDURE

SPECIFICATIONS

	Start Frequency	Stop Frequency	Volts	Notes
GSub10 (unit)	20Hz	300Hz	0.5v	• 0.5v out of integrated bench amp Speaker output • Left and Right speaker outputs must be connected to Gsub10
GSub10 (Driver)	20Hz	1kHz	6v	D.C. resistance 7.6Ω

TEST PROCEDURES

General Function

1. Connect left and right speaker outputs of integrated bench amp to speaker inputs of Gsub10. Make sure polarity is correct
2. Set phase switch to normal, turn Gsub10 volume and crossover knobs fully counter clockwise.
3. Using sine wave generator sweep to above **UNIT** specifications.
4. Listen to driver and cabinet for any rattles, clicks, buzzes and any other noises. If any noises are heard remove driver and test.

Speaker Output

1. With integrated bench amp still connected, connect a pair of satellite speakers to the speaker output of the Gsub10.
2. Play a 0 db pink noise source and verify output from satellites.

Phase

1. With satellites and integrated bench amp still connected play a 0 db pink noise source and verify phase with phase detector. Move phase switch from Normal (0 degrees) to reversed (180 degrees). If a phase detector is not available listen to difference between satellites and woofer. Bass will go from loud to soft.

Line Level

1. Disconnect integrated bench amp from Gsub10 speaker level inputs and satellites from Gsub10.
2. Connect line level output from integrated bench amp to line level input of Gsub10.
3. Play 0 db pink noise source and verify Gsub10 has output.

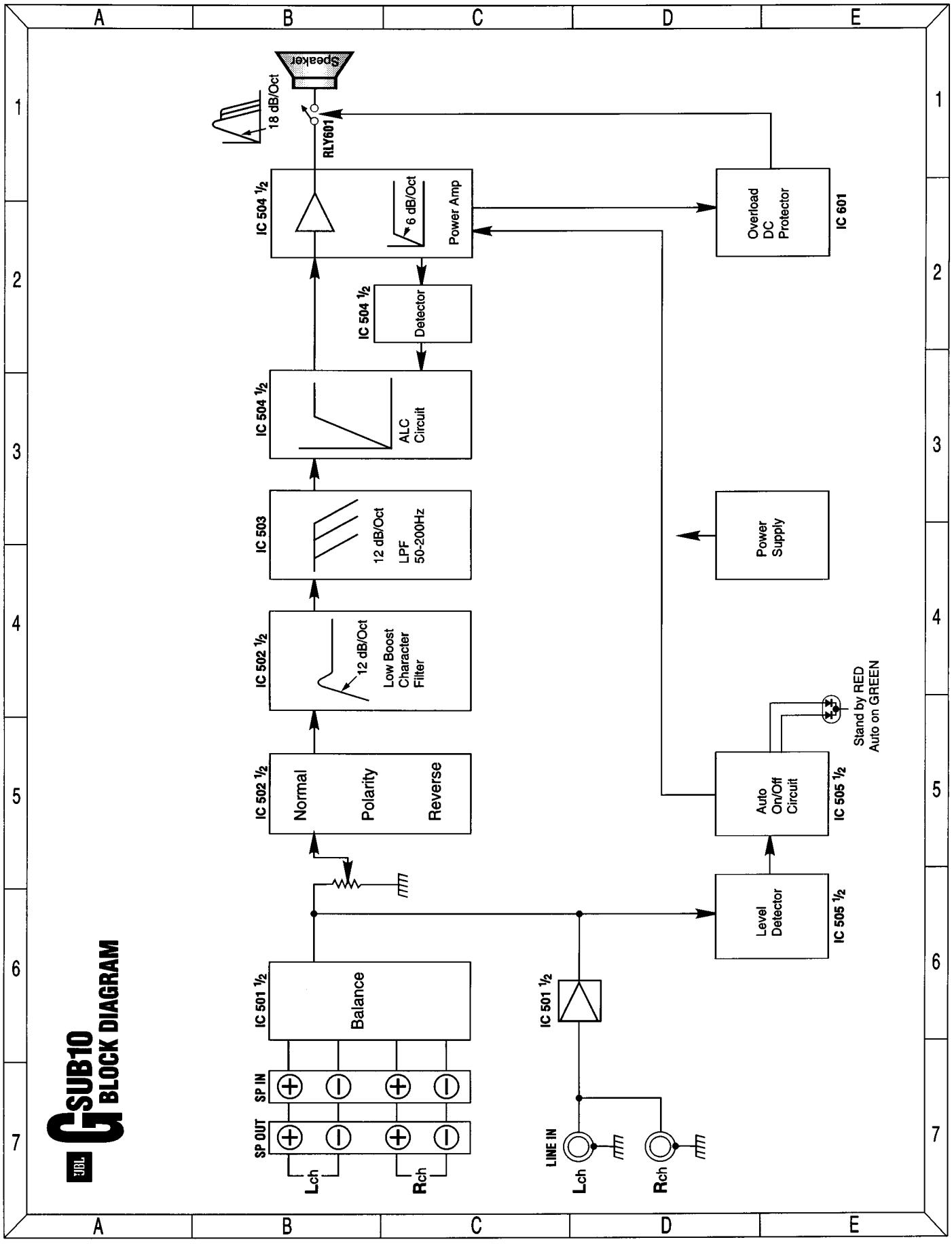
Crossover

1. With line level still connected and playing 0 db pink noise, turn crossover knob back and forth. Verify that Gsub10 output goes from high to low. Sub will appear to have more output with the crossover knob clockwise and less with the knob counter clockwise.

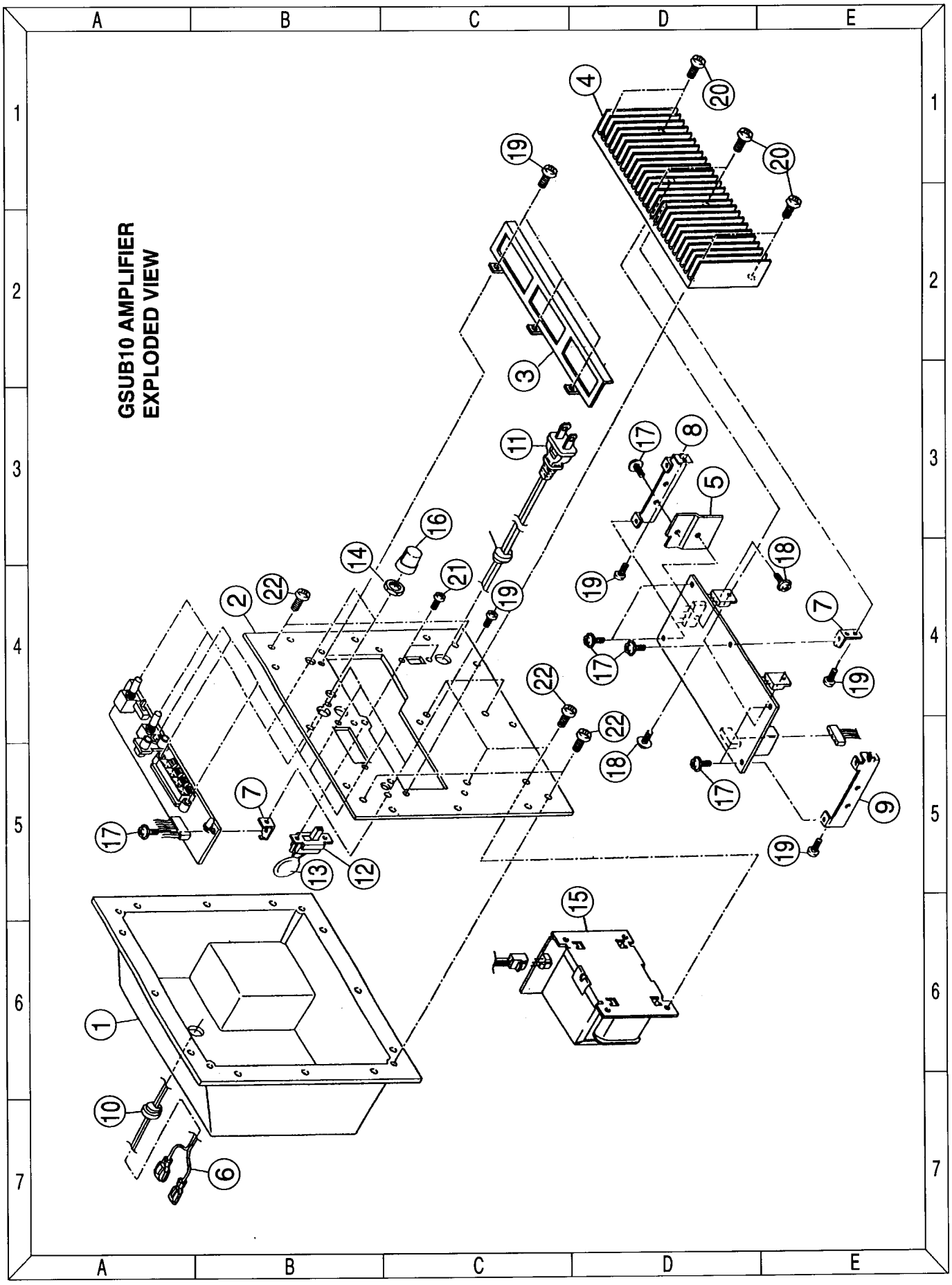
Driver

1. Connect driver to integrated bench amp speaker output.
2. Using sine wave generator sweep to above **DRIVER** specifications. Listen to driver for any noises that would indicate defective driver.

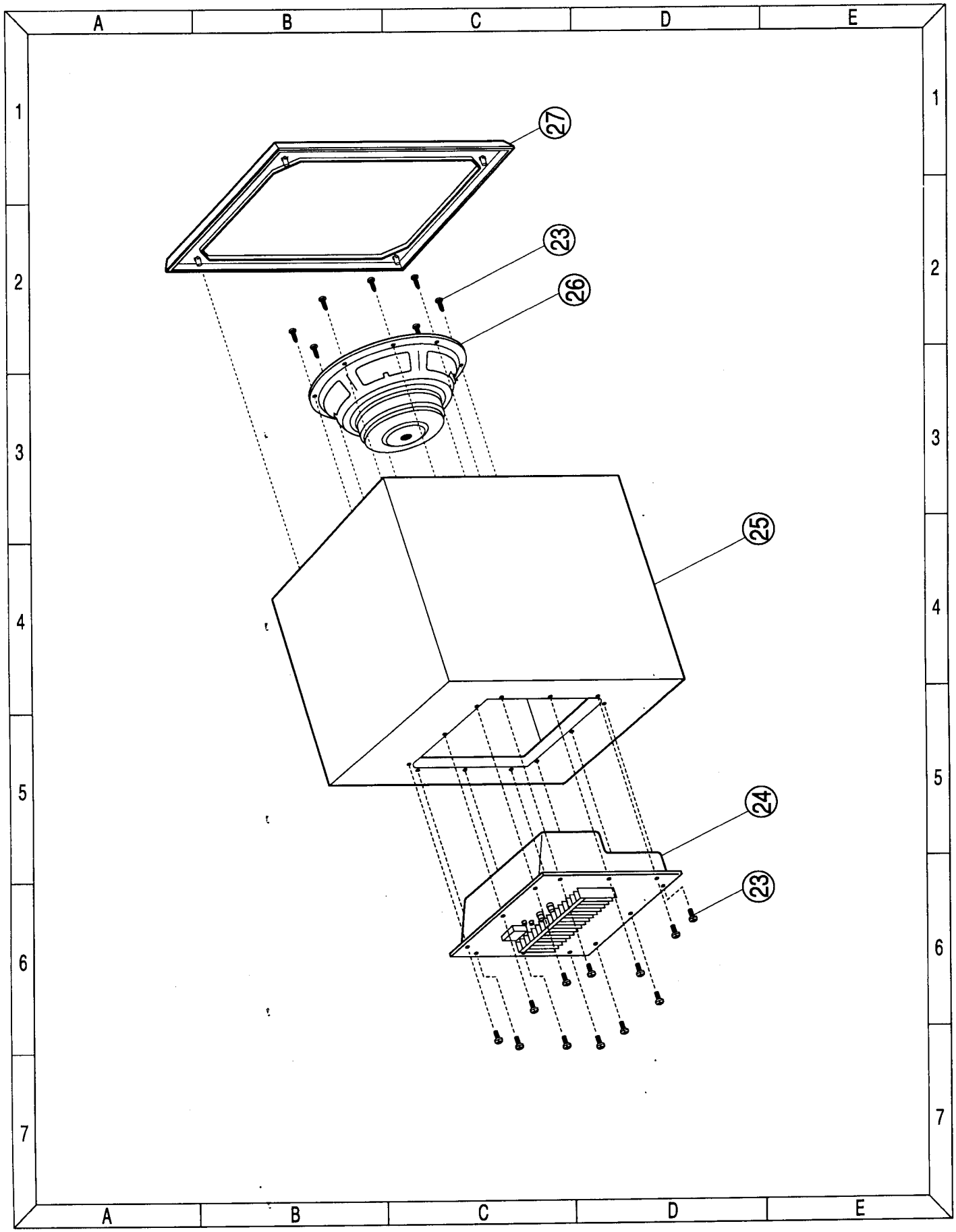
BLOCK DIAGRAM



AMPLIFIER EXPLODED VIEW



CABINET ASSEMBLY EXPLODED VIEW



CABINET/AMPLIFIER ASSEMBLY PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	QTY
These parts are not shown on the exploded view			
	19387001	MISC IPS-5007	3
	34248001	SOCKET FUSE H-0014-1	2
	PCB 8104-10	96810410	1/4
	20903B1A0143	WIRE-KIT B143B1A0-3	1
	62903476	CORD ASSEMBLY VH-VH3P200 D	1
	84387001	MOLD BINDER SKB-1M	4
	93A03221S	CAUTION LABEL A3D1A0	1
These parts are shown on the exploded view			
1	84A02431	MOLD CASE A3B1A0 NC112	1
2	113D1A01	PANEL, REAR (P) A3D1A0	1
3	63A01321	BRACKET, HEATSINK COVER	1
4	15447001	HEATSINK, MAIN A3B1A0-04	1
5	15451001	HEATSINK, DIODE A3B1A0	1
6	62903285	SPEAKER CORD VHR-STO 2P*750	1
7	63A01291	BRACKET, PCB (C) A3B1A0	1
8	63A01311	BRACKET, PCB (D) A3B1A0	1
9	63A01122	BRACKET, PCB (A) A3B1A03	1
10	74035001	CUSHION STOPPER, SR-4K4	2
11	⚠ 62110227	CORD, AC SPT-2 A3B1	1
12	⚠ 27300171	SWITCH, SLIDE ESD39304T	1
13	⚠ 50000256	CERAMIC, 0.01uF 400V	1
14	41000037	M7 NUT	1
15	35900861	POWER TRANSFORMER A3D1A0	1
16	29A00921	KNOB, VOLUME A3B1A0	2
17	40000157	SCREW, S-F T-B 3X6 ZINC	7
18	40000586	SCREW, SEMS-W M3X12 BLACK	1
19	40630105	SCREW, PAN T-B 3X10 BLACK	7
20	40130125	SCREW, BIND M3X12 BLACK	6
21	40430065	SCREW, BIND M3X6 BLACK	2
22	40640105	SCREW, BIND 4X10 BLACK	8
23	#8x3/4" PH	BLACK SCREWS	20
24	JGS10AMP-S	AMPLIFIER	1
25	N/A	SPEAKER HOUSING	1
26	JGS10WFR-S	SUBWOOFER	1
27	JGS10GRL-S	GRILL	1

POWER SUPPLY & POWER AMP PCB ASSEMBLY

REF. NO.	PART NO.	DESCRIPTION	QTY
Capacitors			
C521	2025C228M801	ELECTROLYTIC 2.2µF 50V ±20%	1
C522, 523	2025C100M601	ELECTROLYTIC 10µF 35V ±20%	2
C601	20050124K801	POLYESTER 0.12µF 50V ±10%	1
C602	2025C108M801	ELECTROLYTIC 1µF 50V ±20%	1
C603	20151222K801	CERAMIC 0.0022µF 50V ±10%	1
C604	20170101KK00	CERAMIC 100pF 500V ±10%	1
C605	20151102K801	CERAMIC 0.001µF 50V ±10%	1
C606, 607	20170181KK00	CERAMIC 180pF 500V ±10%	2
C608	2025C470M301	ELECTROLYTIC 47µF 10V ±20%	1
C609, 610	2025C108M801	ELECTROLYTIC 1µF 50V ±20%	2
C611	20050473K801	POLYESTER 0.047µF 50V ±10%	1
C612, 614	20194104Z523	CERAMIC 0.1µF 25V ±10%	2
C613	2025C479M801	ELECTROLYTIC 0.47µF 50V ±20%	1
C615	2025C101M201	ELECTROLYTIC 100µF 6.3V ±20%	1
C616	2025C478M501	ELECTROLYTIC 4.7µF 25V ±20%	1
C617	2025C330M401	ELECTROLYTIC 33µF 16V ±20%	1
C801, 802	202768280182	ELECTROLYTIC 6800µF 50V ±20%	2
C803	2025C470M401	ELECTROLYTIC 47µF 16V ±20%	1
C804	2025C470M401	ELECTROLYTIC 47µF 16V ±20%	1
C805	20190223Z823	ELECTROLYTIC 0.022mF 50V ±10%	1
Diodes			
D507, 508, 601 602, 603, 605 606	205040005019	DIODE 1SS136	7
802	⚠ 205040005019	DIODE 1SS136	1
D604	2050Z003925F	ZENER MTZ3.9B	1
D801	⚠ 205050115007	DIODE RBV401	1
D803, 804	2050Z0150B5F	ZENER MTZ15B	2
Resistors			
R525, 602	20330473J151	CARBON 47KΩ 1/6W ±5%	2
R526, 528, 530 534, 536	20330103J151	CARBON 10KΩ 1/6W ±5%	5
R527	20330105J151	CARBON 1MΩ 1/6W ±5%	1
R529	20330223J151	CARBON 22KΩ 1/6W ±5%	1
R531, 533, 604	20330102J151	CARBON 1KΩ 1/6W ±5%	3
R532	20330105J151	CARBON 1MΩ 1/6W ±5%	1
R535	20330474J151	CARBON 470KΩ 1/6W ±5%	1
R601	20330102J151	CARBON 4.7KΩ 1/6W ±5%	1
R603	20330182J151	CARBON 1.8KΩ 1/6W ±5%	1
R605, 606, 607	20330181J151	CARBON 180Ω 1/6W ±5%	3
R608	20330472J151	CARBON 4.7KΩ 1/6W ±5%	1
R609	20330392J151	CARBON 3.9KΩ 1/6W ±5%	1
R610	20330271J151	CARBON 270KΩ 1/6W ±5%	1
R611	⚠ 20333470J146	FAIL-SAFE 47Ω 1/4W ±5%	1
R612	20330272J151	CARBON 2.7KΩ 1/4W ±5%	1
R613	20330102J151	CARBON 1KΩ 1/4W ±5%	1
R614	20330101J151	CARBON 100Ω 1/4W ±5%	1
R615	⚠ 20333470J146	FAIL-SAFE 47KΩ 1/4W ±5%	1
R16, 617	⚠ 20333100J146	FAIL-SAFE 10Ω 1/4W ±5%	2
R618	20333331J146	FAIL-SAFE 330Ω 1/4W ±5%	1
R619, 620	⚠ 20333100J146	FAIL-SAFE 10Ω 1/4W ±5%	1
R621, 622	20352399J022	METALIZE 0.39Ω 2W ±5%	1
R623	20330473J151	CARBON 47KΩ 1/6W ±5%	1
R624	20330471J151	CARBON 470Ω 1/6W ±5%	1
R625	20330332J151	CARBON 3.3KΩ 1/6W ±5%	1
R626	20330223J151	CARBON 22KΩ 1/6W ±5%	1
R627	20330682J151	CARBON 6.8KΩ 1/6W ±5%	1
R628, 629	20330103J151	CARBON 10KΩ 1/6W ±5%	1
R630	20333100J146	FAIL-SAFE 10Ω 1/6W ±5%	1
R631	20330104J151	CARBON 100KΩ 1/6W ±5%	1
R632	20330153J151	CARBON 15KΩ 1/6W ±5%	1
R633	20330563J151	CARBON 56KΩ 1/6W ±5%	1
R634	20333102J126	FAIL-SAFE 1KΩ 1/2W ±5%	1
R635	20330223J151	CARBON 226KΩ 1/6W ±5%	1
R636, 637	20352399J022	METALIZE 0.39Ω 2W ±5%	1
R638, 639	20333102J146	FAIL-SAFE 1KΩ 1/4W ±5%	1
R801, 802	⚠ 20352821J022	METALIZE 820Ω 2W ±5%	1
R803	20352222J012	METALIZE 2.2KΩ 1W ±5%	1
Integrated Circuits			
IC504	20541000530A	Check the Input & Control Circuit NJM4558DD	1
IC601	205419000206	PROTECTOR µPC1237HA	1

Transistors			
Q501, 502	2050C278500T	2SC2785 KEF NPN	2
Q601, 602, 603	2050A117500T	2SA1175 KEF PNP	3
Q604	2050C278500T	2SC2785 KEF NPN	1
Q605	2050A103800T	2SA1038 SE PNP	1
Q606	⚠ 2050C238900T	2SC2389 SE NPN	1
Q607	2050C403806T	2SC4038 RT NPN	1
Q608	2050C2235002	2SC2235 0 NPN	1
Q609	2050A0965002	2SA965 0 PNP	1
Q610	⚠ 2050C5100007	2SC5100 OPY NPN	1
Q611	2050A1908007	2SA1908 OPY PNP	1
Q612	2050C238900T	2SC2389 SE NPN	1
Q613	20500000602T	DTA123ES T	1
Relay			
RLY601	82000384	RELAY VB-245M BU-UL3	1
CordS			
	62903476	CORD 3Px200mm	1
	62903285	CORD 2Px750mm	1
Connectors			
BC501	87007058	CONNECTOR EH 7P	1
BC602	87402072	CONNECTOR VH 2P	1
BC801	87403072	CONNECTOR VH 3P	1

INPUT & CONTROL PCB ASSEMBLY

REF. NO.	PART NO.	DESCRIPTION	QTY
Capacitors			
C501, 503, 507	2025C100M601	ELECTROLYTIC 10µF 35V ±20%	3
C502, 504, 505 506	20151221K801	CERAMIC 220pF 50V ±10%	4
C509, 510	20050473J801	POLYESTER 0.047µF 50V ±5%	2
C511	20050124J801	POLYESTER 0.12µF 50V ±5%	1
C512	20050683J801	POLYESTER 0.068µF 50V ±5%	1
C515, 516	2025C108J801	ELECTROLYTIC 1µF 50V ±20%	2
C518, 519	20194104Z523	CERAMIC 0.1µF 25V ±10%	2
C524	2025C220M501	ELECTROLYTIC 22µF 25V ±20%	1
C525	2025C221M401	ELECTROLYTIC 220µF 16V ±20%	1
C526	2025C100M601	ELECTROLYTIC 10µF 35V ±20%	1
Integrated Circuits			
IC501	20541000630A	MIX AMPLIFIER NJM4558D	1
IC502	20541000630A	SUBSONIC FILTER NJM4558D	1
IC503	20541000630A	LOW PASS FILTER NJM4558D	1
IC505	20541000630A	AUTO ON-OFF NJM4558D	1
Diodes			
D501, 502, 503 504, 505, 506 509, 510, 511	205040005019	DIODE 1SS136	9
D512	205200902877	2COLOR LED SML1216W	1
Resistors			
R501, 502, 503 504	20330104J151	CARBON 100KΩ 1/6/W ±5%	4
R505, 506	76843472	CARBON 4.7KΩ 1/4/W ±5%	2
R507, 508, 510 514, 515, 517	20330103J151	CARBON 10KΩ 1/6/W ±5%	6
R509	20330102J151	CARBON 1KΩ 1/6W ±5%	1
R511	20330333J151	CARBON 33KΩ 1/6W ±5%	1
R512, 513	20330682J151	CARBON 6.8KΩ 1/6W ±5%	2
R519	20330434J151	CARBON 430KΩ 1/6W ±5%	1
R520	20330123J151	CARBON 12KΩ 1/6W ±5%	1
R521, 522	20330113J151	CARBON 11KΩ 1/6W ±5%	1
R537, 544	20330472J151	CARBON 4.7KΩ 1/6W ±5%	2
R538	20330474J151	CARBON 470KΩ 1/6W ±5%	1
R539, 545, 546	20330103J151	CARBON 10KΩ 1/6W ±5%	3
R540, 552, 552	20330102J151	CARBON 1KΩ 1/6W ±5%	3
R541	20330105J151	CARBON 1KΩ 1/6W ±5%	1
R542, 543	20330104J151	CARBON 100KΩ 1/6W ±5%	2
R549	20330224J151	CARBON 220KΩ 1/6W ±5%	1
R550	20330101J151	CARBON 100Ω 1/6W ±5%	1
Cord			
CN501	62902573	7Px130mm	1
Jack			
JK501	3302A400	RCA RJ1020-010	1
Terminal			
TM501	53084230	TERMINAL SPKR CJ-9001-080	1
Variable Resistors			
VR501	206001140101	VARIABLE RK091110 10KΩ A	1
VR502	206002136801	VARIABLE RK00971210 50KΩ Bx2	1
Switch			
SW501	27300177	SLIDE SSSF112-509NO	1
Transistors			
Q503, 504, 506	20501001002T	DTC124ES T	2
Q507, 508	20500000602T	DTA124ES T	2
Q509	2050A117500T	2SA1175 KEF PNP	1

PRIMARY TERMINAL PCB ASSEMBLY

REF. NO.	PART NO.	DESCRIPTION	QTY
Fuse			
F801	⚠ 38334220	FUSE ST-4 250V 2A	1
	34248001	SOCKET FUSE H-0014-1	1
	19387001	TERMINAL PIN 1PS-5007	1
Transformer			
T801	35900861	POWER TRANSFORMER	1
Connector			
CN802	⚠ 87403072	CONNECTOR VH 3P	1

AC SWITCH ASSEMBLY

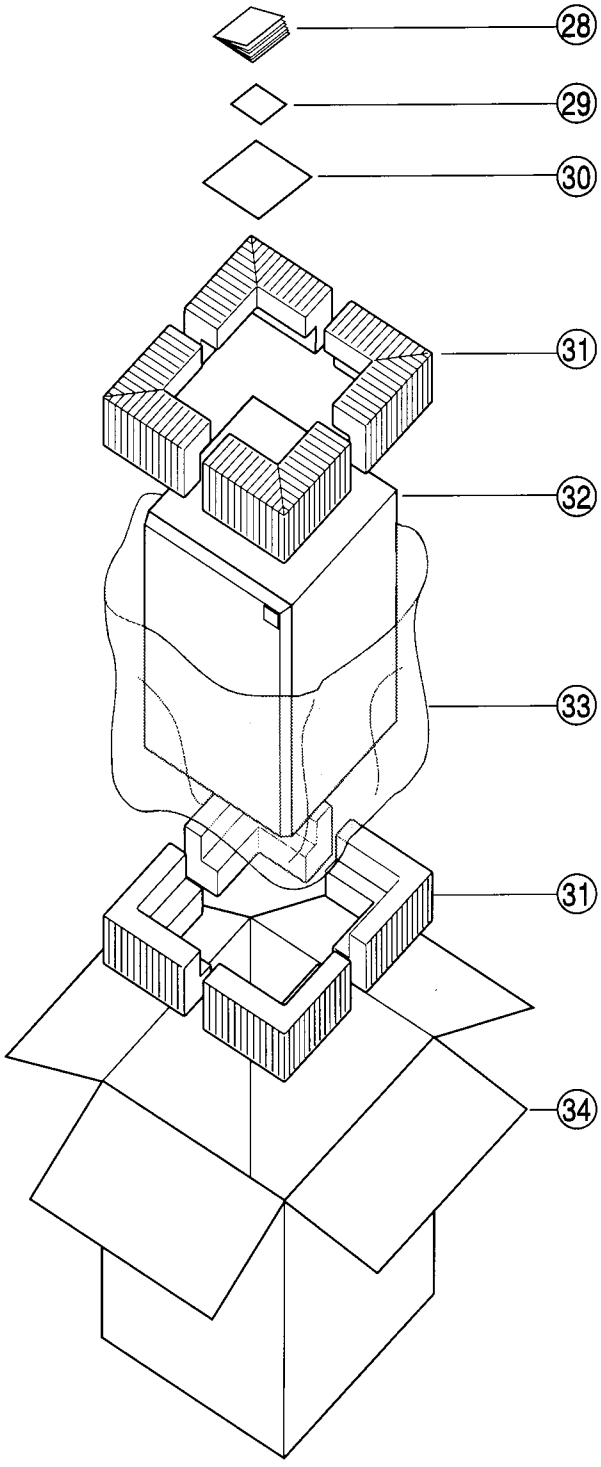
REF. NO.	PART NO.	DESCRIPTION	QTY
S801	⚠ 27300171	SWITCH SLIDE ESD39304T	1
Capacitor			
C851	⚠ 50000256	CERAMIC 250VAC 0.01µF ±5%	1

Note: Components marked with ⚠ have special characteristics important to safety. When replacing a component identified with ⚠, use only the replacement part designated or parts with the identical ratings.

PACKAGING PARTS LIST

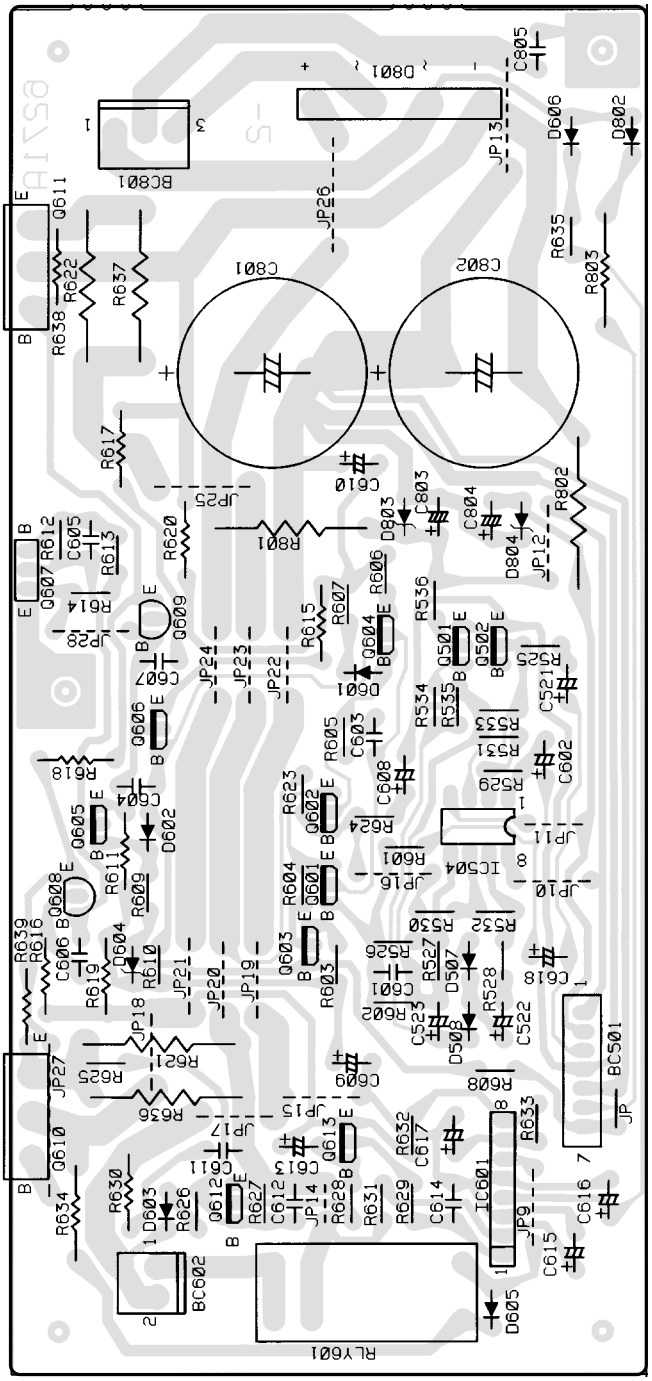
REF. NO.	PART NO.	DESCRIPTION	QTY
28	JGS100WN-S	OWNER'S MANUAL	1
29	76082-01	WARRANTY	1
30	N/A	SAFETY PRECAUTIONS	1
31	17-309	CORNER FOAM PACKING	8
32		GSUB10 SUBWOOFER	1
33	N/A	POLY BAG 400x500 A366A0	1
34	JGS10CTN-S	CARTON BOX A3D1A0	1

PACKAGING EXPLODED VIEW

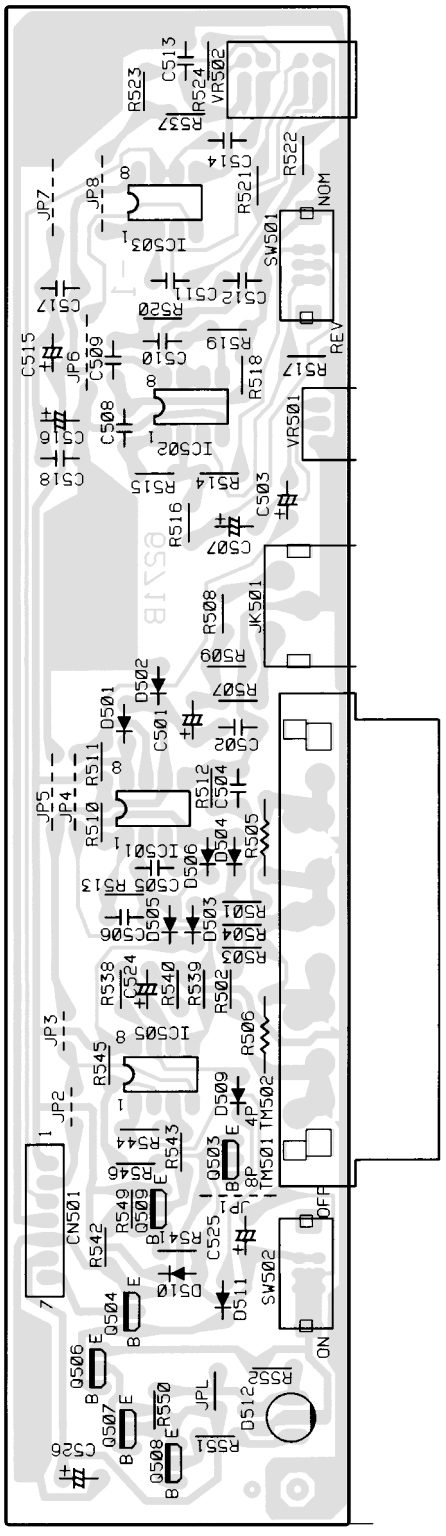


PRINTED CIRCUIT BOARDS

Power Supply & Power Amp PCB Assembly



Input & Control PCB Assembly



PRINTED CIRCUIT BOARD

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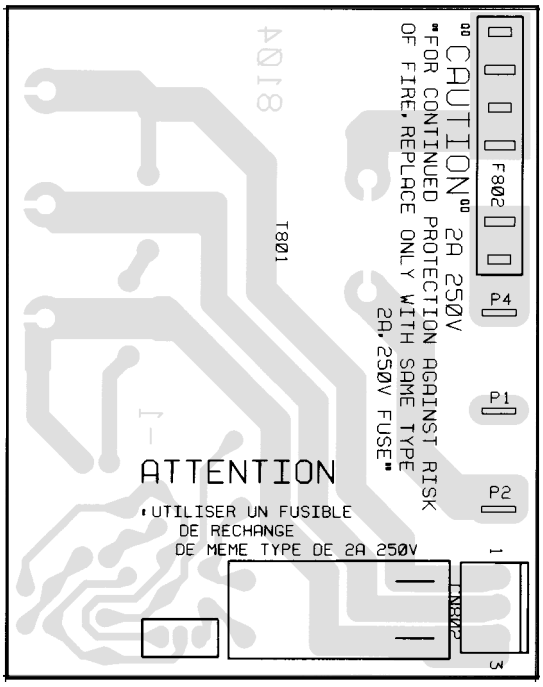

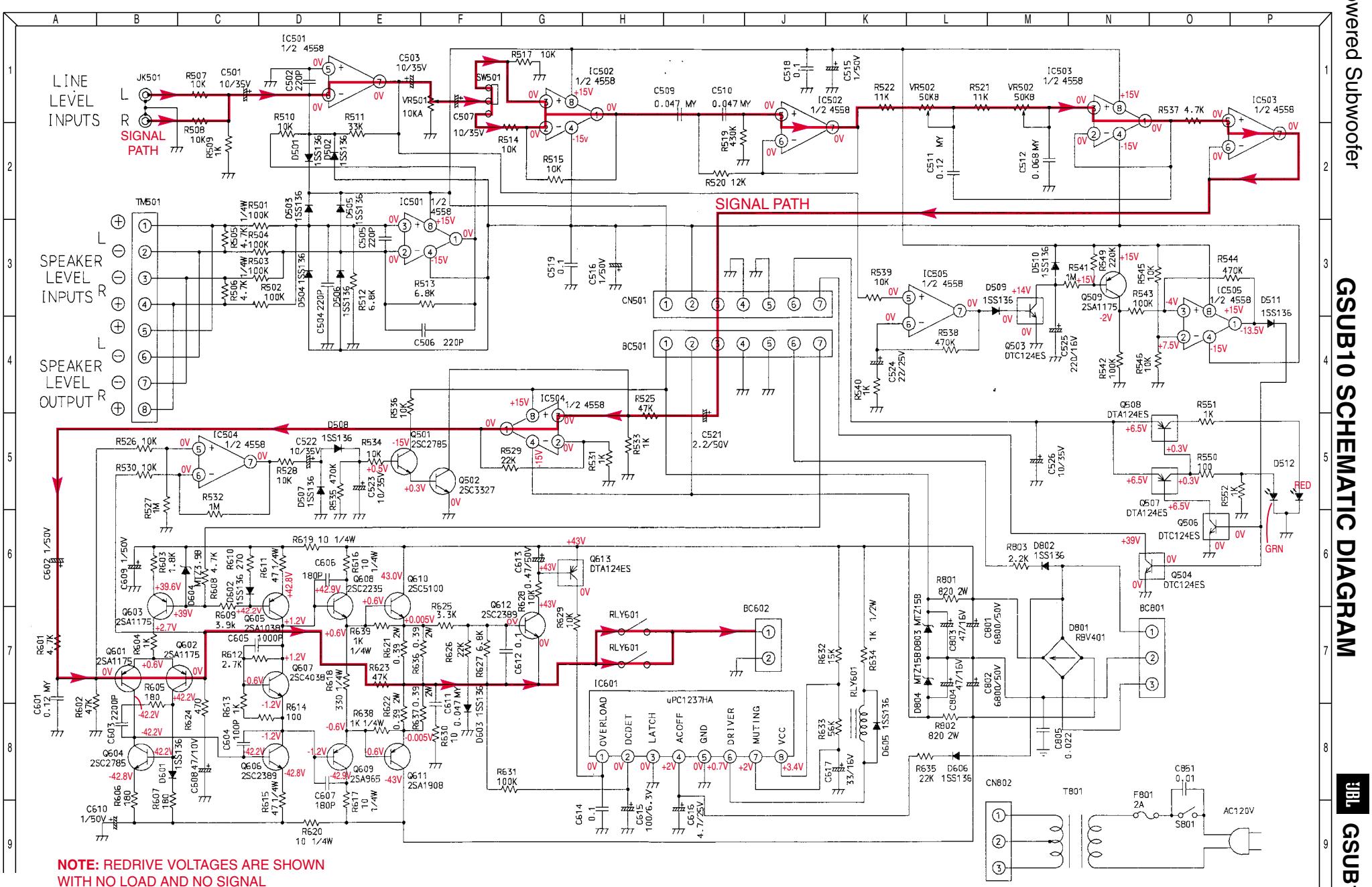
LINE LEVEL INPUTS
L
R
SIGNAL PATH
SPEAKER LEVEL INPUTS
SPEAKER LEVEL OUTPUT
SIGNAL PATH
JK501
TM501
CN501
BC501
BC602
BC801
CN802
T801
F801 2A
S801
AC120V
IC501 1/2 4558
IC502 1/2 4558
IC503 1/2 4558
IC504 1/2 4558
IC505 1/2 4558
IC601 uPC1237HA
OVERLOAD
DCDET
LATCH
ACOFF
GND
DRIVER
MUTING
VCC
RLY601
Q501 2SC2785
Q502 2SC3327
Q503 DTC124ES
Q504 DTC124ES
Q505 DTC124ES
Q506 DTC124ES
Q507 DTA124ES
Q508 DTA124ES
Q509 2SA1175
Q601 2SA1175
Q602 2SA1175
Q603 2SA1175
Q604 2SC2785
Q605 2SA1038
Q606 2SC2389
Q607 2SC4038
Q608 2SC2235
Q609 2SA965
Q610 2SC5100
Q611 2SA1908
Q612 2SC2389
Q613 DTA124ES
D801 RBV401
RED
GRN
NOTE: REDRIVE VOLTAGES ARE SHOWN WITH NO LOAD AND NO SIGNAL

GSUB10 SCHEMATIC DIAGRAM